MONTHLY WEATHER REVIEW.

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INTRODUCTION.

The MONTHLY WEATHER REVIEW for January, 1902, is based on reports from about 3,100 stations furnished by employees and voluntary observers, classified as follows: Regular stations of the Weather Bureau, 162; West Indian service stations, 13; special river stations, 132; special rainfall stations, 48; voluntary observers of the Weather Bureau, 2,562; Army post hospital reports, 18; United States Life-Saving Service, 9; Southern Pacific Railway Company, 96; Hawaiian Government Survey, 200; Canadian Meteorological Service, 33; Jamaica Weather Office, 160; Mexican Telegraph Service, 20; Mexican voluntary stations, 7; Mexican Telegraph Company, 3; Costa Rican Service, 7. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Mr. Maxwell Hall, Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; Lieut. Commander W. H. H. Southerland, Hydrographer, United States Navy; H. Pittier, Director of the Physico-Geographic Institute, San Jose, Costa Rica; Capt. François S. Chaves, Director of the Meteorological Observatory, Ponta Delgada, St. Michaels, Azores; W. M. Shaw, Esq., Secretary, Meteorological Office, London; and Rev. Josef Algué, S. J., Director, Philippine Weather Service.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. The Hawaiian standard meridian is 157° 30′, or $10^h\ 30^m$ west of Greenwich. The Costa Rican standard of time is that of San Jose, $0^h\ 36^m\ 13^s$ slower than seventy-fifth meridian time, corresponding to $5^h\ 36^m$ west of Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local standard is mentioned.

Barometric pressures, whether "station pressures" or "sea-level pressures," are now always reduced to standard gravity, so that they express pressure in a standard system of absolute measures.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

During the first three days of the month severe storms prevailed over the British Isles and the eastern part of the Atlantic, with reported minimum barometric pressure, 28.86 inches, at Stornoway, Scotland, on the morning of the 2d. During the 12th a storm of marked intensity moved northeastward over New England, with minimum pressure, 28.90 inches, at Eastport, Me. This storm passed over the Gulf of St. Lawrence and Newfoundland during the 13th, and was met by steamers east and northeast of the Grand Banks during the 14th and 15th, after which it apparently dissipated. The third important storm of the month on the North Atlantic passed north of east off the south Atlantic coast of the United States during the 16th, was central north of Bermuda on the morning of the 17th, and passed northeastward over Newfoundland and the Grand Banks during the 18th. On the morning of the 17th advices regarding this storm were telegraphed in the interest of transatlantic shipping to Atlantic coast ports and to London. During the 22d and 23d a storm of marked strength moved northeastward over New England to the Gulf of St. Lawrence and, passing northeastward over Newfoundland during the 24th, apparently united with an extensive area of low barometer which occupied the Atlantic in high latitudes. On the morning of the 25th the lowest barometer reading of the month, 28.70 inches, was reported at Sumburgh, Scotland. During the night of the 27th a storm passed eastward over Newfoundland. This storm appeared to have a slow progressive movement to the eastward, and by the close of the month the North Atlantic Ocean was covered by an area of low barometer of great magnitude, which extended from the Grand Banks to the British Isles and southward over Azores.

The principal cold wave of January, 1902, occurred during the third decade of the month. This cold wave first appeared over the extreme Northwest British Territory on the morning of the 23d, extended over the middle and northern Rocky Mountain districts by the morning of the 24th, and was reinforced during the 25th by intense cold which attended the advance over the middle west and northwest of an extensive area of high barometer; by the morning of the 26th the line of freezing temperature extended into the interior of southern California, to extreme southern New Mexico, and to central Texas. On the morning of the 27th freezing temperature was reported to the Texas coast, the line of zero temperature reached northwestern Texas, and the thermometer readings were twenty to thirty degrees below zero in the States of the middle and upper Missouri, and Red River of the North valleys. The advance of this cold wave to the south Atlantic coast dis-